SUNFISH FAMILY—CENTRARCHIDAE

This family contains more species of freshwater game fishes than any other in North America, and includes not only black basses and crappies but also smaller sunfishes such as bluegill and redear sunfish. Thirty species are represented, including our one native warmwater game fish, the Sacramento perch. Twelve species are presently found in California.

Typically, members of this family are nesting fishes. During spawning the male scoops out a depression in the substrate in which one or more females deposit eggs. After fertilization, the male guards the eggs and newly hatched young, usually for several days.

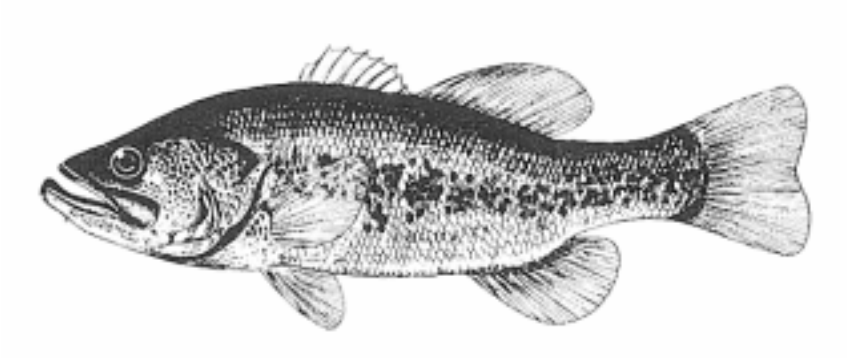
Young fish feed on minute organisms at first, and later upon larger aquatic organisms. Adults of the larger species, particularly the basses and crappies, eat mostly smaller fishes. Rate of growth and sizes attained depend on the species and the amount of food available.

These fishes are very prolific, and therefore are seldom stocked on a routine basis. Some of the sunfishes and crappies may become so abundant that severe competition for food results in slow growth and stunted populations. This is why bag limits for certain species such as crappie and bluegill are usually very liberal.

All of these fishes are good eating. They are also good fighters, particularly the basses. Minnows, worms, plugs, poppers, flies, and spinners are among the anglers' array of baits and lures. The smaller species, collectively often called panfish, are usually caught on similar, but smaller, baits and lures.

LARGEMOUTH BASS

Micropterus salmoides



DISTINGUISHING CHARACTERISTICS

Upper jaw extends past a vertical line drawn through rear margin of eye; dark, blotchy, longitudinal band on sides, less prominent in old individuals; dorsal fin deeply notched when compared to smallmouth bass.

DISTRIBUTION IN CALIFORNIA

The largemouth bass, one of our most popular warmwater species, occurs in nearly all suitable lakes, sloughs, slow-moving rivers, and farm ponds in California. Its first appearance in California is uncertain, since it may have been included with plants of smallmouth bass in Napa and Alameda creeks in 1874. In 1879, 22 mature largemouth were brought from the East and planted in Crystal Spring Reservoir, San Mateo County, where they reproduced well. Sometime shortly before this, a sportsmen's club put a few largemouth in Lake Temescal near Oakland. Progeny of the Crystal Spring fish were distributed widely over the State.

In 1959, a strain of largemouth bass from Florida was introduced into lakes in San Diego County, where the fish has attained exceptional size. This strain was introduced into Clear Lake, Lake County, in 1969 and several additional northern California waters since then.

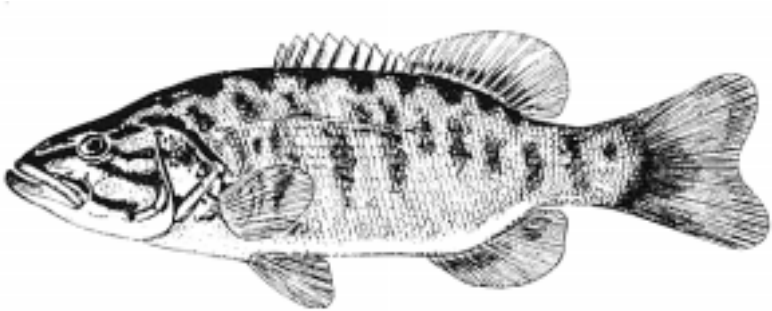
LIFE HISTORY NOTES

Largemouth bass prefer warm waters, usually in excess of 65°F. They become lethargic and lose their appetite when the water is colder than 50°F, remaining in deep water in this torpid state for much of the winter. They provide extra challenge to the persistent bass angler during this period. As the water warms they move into the shallows, and when the temperature rises to about 60 to 65°F in the spring, they begin spawning. With the exception of smallmouth bass and spotted bass, largemouth bass spawn earlier in the season than other sunfishes.

A female lays between 2,000 and 40,000 eggs, depending on her size. The rate at which eggs develop depends upon water temperature; under normal conditions, they hatch in 2 to 6 days. By autumn the young fish are from 2 to 8 in. long and precocious ones may attain 10 in. within a year. Within 2 years most reach the 8- to 12-in. range. The Florida strain is somewhat harder to catch, and may grow larger than the northern strain of fish in heavily fished reservoirs. In general, largemouth bass weighing 3 or 4 lb. are considered good-sized fish. Under highly favorable conditions they may mature and spawn when 1 year old, but more often largemouth bass do not reach sexual maturity for 2 or 3 years. The Florida form hybridizes freely with the northern form and hybridized populations can exhibit features of either parent strain. As a result, field identification of strains is virtually impossible.

SMALLMOUTH BASS

Micropterus dolomieu



DISTINGUISHING CHARACTERISTICS

Dark vertical barring usually present on sides. In contrast with the largemouth bass, upper jaw does not extend to rear margin of eye and dorsal fin not deeply notched.

DISTRIBUTION IN CALIFORNIA

The smallmouth was first brought to California in 1874 from Lake Champlain, Vermont, and St. Joseph River, Michigan, and planted in the Napa River and in Alameda Creek. It subsequently spread and was introduced into a number of waters through central and northern California. It is now found, among other places, in Trinity Lake, Putah Creek, the Russian River, the Colorado River, the lower portions of many tributaries of the Sacramento and San Joaquin rivers (including the Feather, American, Tuolumne, Stanislaus, Merced, San Joaquin, Kings, and Kern rivers), and many Central Valley impoundments such as Shasta Lake, Shasta County; Oroville Lake, Butte County; and Folsom Lake, Placer and El Dorado counties.

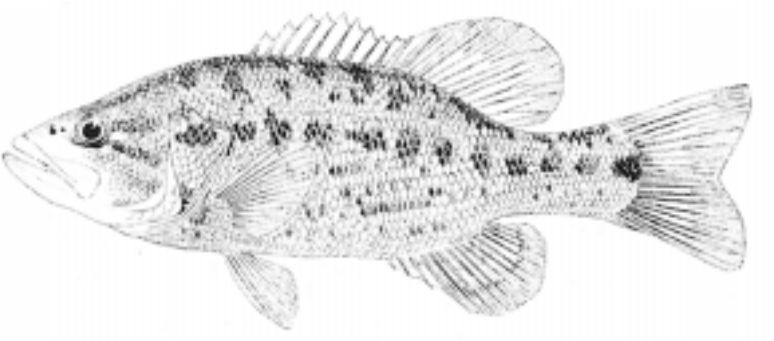
LIFE HISTORY NOTES

Smallmouth bass prefer lower temperatures (about 70°F) and adapt to swifter currents than largemouth. They do best in clear, boulder-strewn streams with large pools, and in clear lakes with scant vegetation and rocky shoal areas for spawning. They are the earliest spawning bass, beginning in the spring when water temperatures reach 55 to 60°F.

Smallmouth are often considered to be better fighters than largemouth, but the latter usually grow larger. Most anglers are highly satisfied with 2- and 3-lb. smallmouth.

SPOTTED BASS

Micropterus punctulatus



DISTINGUISHING CHARACTERISTICS

Upper jaw extends to rear margin of pupil. Blotchy lateral band with spots above it and linear streaks below. As in the smallmouth bass, dorsal fin not deeply notched.

DISTRIBUTION IN CALIFORNIA

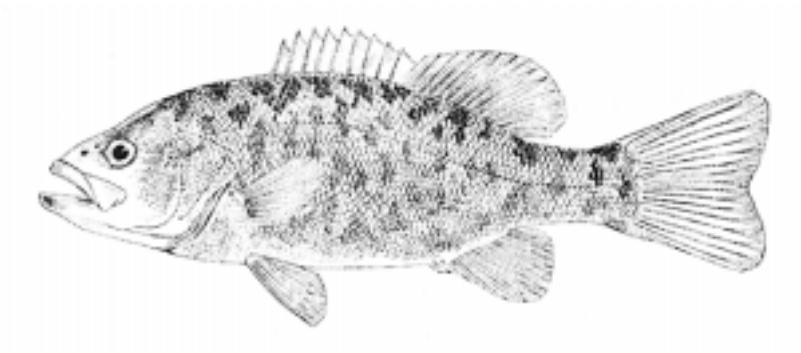
Northern spotted bass were flown to California in 1933 from Ohio, reared at the Department's Central Valleys Hatchery, and planted in several lakes and ponds. They have become established in a limited portion of the Cosumnes River, Sacramento and El Dorado counties; Merle Collins Lake, Yuba County; and Oroville Lake and the Feather River below it, Butte County. In 1974, 95 Alabama spotted bass from Smith-Lewis Reservoir, Alabama, were planted in Lake Perris, Riverside County. Progeny from this plant have subsequently been established in San Vicente Reservoir, San Diego County, and Millerton Lake, Fresno County. They have recently been planted in Pine Flat Lake, Fresno County, where some reproduction has been documented. They were also stocked in Lake Isabella, Kern County.

LIFE HISTORY NOTES

Spotted bass inhabit the limnetic or open water portion of a lake more than largemouth or smallmouth. They begin spawning in the spring when water temperatures reach 57 to 74°F and are not as prolific as the other black basses, producing from 2,000 to 2,500 young per nest. Spotted bass are normally slower growing than largemouth bass and do not get extremely large. The northern form rarely exceeds 3 lb. The Alabama form has a higher growth potential; 4- to 5-lb. fish are not uncommon, although 2-lb. fish are the rule.

REDEYE BASS

Micropterus coosae



DISTINGUISHING CHARACTERISTICS

Fins and eyes of adults brick red. Often mistaken for the smallmouth bass, but is more closely related to the spotted bass. Young redeye can be distinguished from all other black basses by red fins and the absence of a black band across the lobes of the tail fin.

DISTRIBUTION IN CALIFORNIA

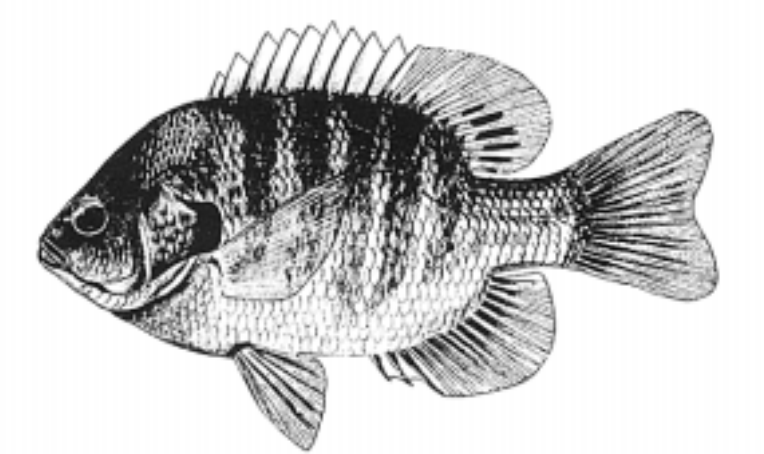
In 1962, fish from Atlanta, Georgia, were planted in six small streams in central and southern California and Lake Oroville, Butte County. Reproducing populations developed only in the South Fork of the Stanislaus River, Tuolumne County; the Santa Margarita River, San Diego County; and Lake Oroville.

LIFE HISTORY NOTES

Redeye were brought in to fill a niche unoccupied by any other game species. Their typical habitat is small streams which are too warm for trout, and too small or too cold for other basses. They are opportunistic feeders much like trout, but are extremely slow growing compared to other basses. They rarely exceed 15 in. in length. Spawning behavior is similar to that of smallmouth, except that it occurs when water temperatures reach 62 to 70°F.

BLUEGILL

Lepomis macrochirus



DISTINGUISHING CHARACTERISTICS

Dark spot at rear base of dorsal fin, vertical bars on sides, body very deep and compressed, mouth small, opercular lobes flexible, pectoral fins long and pointed.

DISTRIBUTION IN CALIFORNIA

This is the most abundant sunfish in California, found in virtually all warmwater lakes, and in many warm, slow-moving streams. It was first introduced in 1895, in the Bolsa Chica River, Orange County, and Elsinore Lake, Riverside County, but apparently did not survive. In 1908, bluegill from Meredosia, Illinois, were successfully planted in various waters from Placer County in the north to Orange County in the south. Since 1976, the Department of Fish and Game has been conducting studies on Florida bluegill. They are a discrete subspecies which exhibit a reddish fin coloration but are difficult to distinguish from the common form.

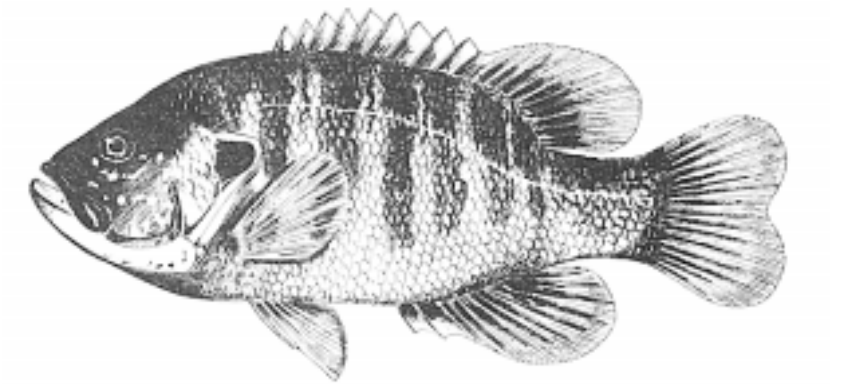
LIFE HISTORY NOTES

Bluegill reach their greatest abundance in lakes and ponds with moderate plant growths. They are generally found in schools near some type of cover. This behavior often makes for fast sport fishing when they are located. Bluegill feed on a wide variety of animal life. They grow best when water temperatures are between 60 and 80°F and generally are 4- to 5- in. long by the end of their third year. A 15½-in, bluegill was taken from Ketona Lake, Alabama, but adults are typically only 6- to 7-in, long. Bluegill are quite prolific and can spawn four times a year in southern California where high water temperatures are sustained. The peak of spawning is usually in May or early June when water temperatures are about 67°F. A second wave of spawning can occur about 1 month later. They are excellent eating, their flesh being firm, sweet, and not too oily.

Bluegill have often been planted with largemouth bass as forage for the bass, as well as providing a supplementary fishery. This combination, however, does not work well if bass are taken by anglers at higher rates than bluegill. When this occurs, bluegill may overpopulate, become stunted, and interfere with bass reproduction.

GREEN SUNFISH

Lepomis cyanellus



DISTINGUISHING CHARACTERISTICS

Mouth relatively large for a sunfish. Body rather bass-shaped; not as deep as bluegill or redear sunfish. Turquoise mottling, often in the form of bars, radiates backward from the snout and eye. Pectoral fins short and rounded.

DISTRIBUTION IN CALIFORNIA

Green sunfish are found in most of our lakes and slow-moving streams. They are usually not abundant except in mid-elevation lakes and streams that do not contain bluegill or redear sunfish. They were first introduced accidentally into Lake Cuyamaca, San Diego County, in 1891 from Illinois.

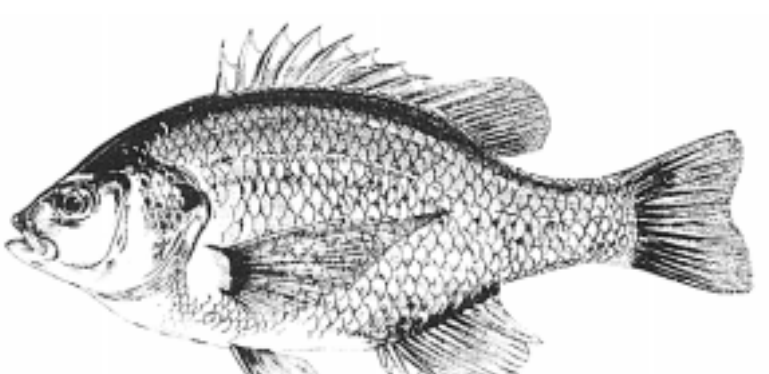
LIFE HISTORY NOTES

Green sunfish are very adaptable and are able to colonize disturbed habitats more easily than many species. They are frequently found in low numbers in the same waters as bluegill, and are often associates of smallmouth bass in small streams. They are also found in some trout lakes. Their temperature tolerance range is large; some green sunfish are able to withstand water temperatures over 97°F. Spawning starts when temperatures exceed 66°F and nests can be found in shallow waters, either singly or in colonies. Green sunfish feed primarily on aquatic insects and small fish.

Green sunfish are the least desirable of our sunfishes. They tend to overpopulate and stunt, and, even under good growing conditions, seldom exceed 7 in.

REDEAR SUNFISH

Lepomis microlophus



DISTINGUISHING CHARACTERISTICS

Opercular lobe stiff, with broad red or orange margin below and behind. Gill rakers short and stout. Pectoral fins long and pointed.

DISTRIBUTION IN CALIFORNIA

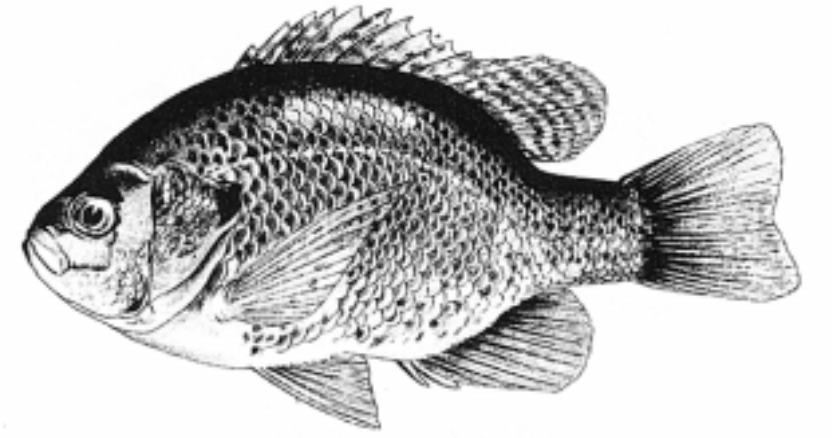
In 1948, redear sunfish were planted in the Headgate Rock Dam area of the lower Colorado River, San Bernardino County. Since that time they have been introduced successfully in many areas of the State.

LIFE HISTORY NOTES

Redear prefer deeper waters of quiet, warm lakes, ponds, and sloughs, and dense vegetation. They can spawn several times a year beginning when water temperatures reach nearly 75°F. They are bottom feeders, eating snails, clams, and other invertebrates with shells. They grow best in water about 75°F and are generally 4½- to 9-in, long, reaching a maximum size in California of around 12 in.

Redear sunfish are a popular component of warmwater fisheries in California. They grow more rapidly than most other sunfishes and are not as prone to overpopulate and stunt as bluegill and green sunfish. Bluegill-redear sunfish hybrids are common in waters where they coexist.

PUMPKINSEED
Lepomis gibbosus



DISTINGUISHING CHARACTERISTICS

Opercular lobe with a spot of orange or red on lower part; cheeks with prominent blue and orange stripes.

DISTRIBUTION IN CALIFORNIA

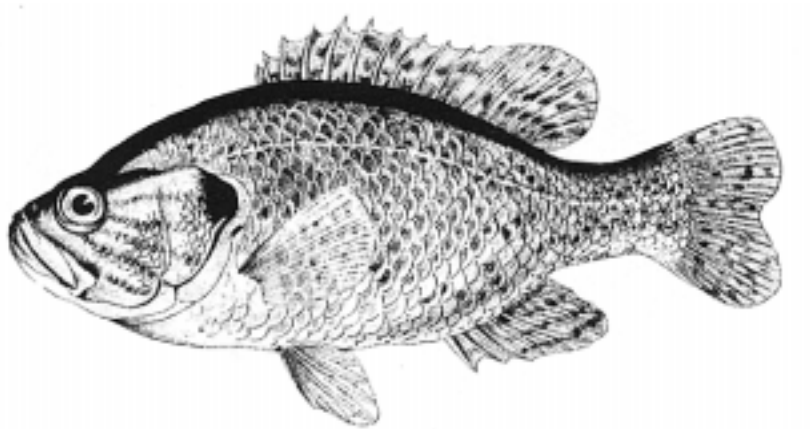
The origin of California populations is unknown. Pumpkinseed were discovered in 1942 in the lower Susan River, Lassen County. They are now found there and in nearby Honey Lake; in the upper Klamath River; Iron Gate and Copco lakes, Siskiyou County; in Antelope Creek, a tributary of Lost River, Modoc County; in Big Bear Lake, San Bernardino County; and in Hemet Lake, Riverside County.

LIFE HISTORY NOTES

Pumpkinseed prefer clear waters over bottoms of sand or muck and dense submerged aquatic vegetation. They are adapted to cooler waters, especially those with large seasonal fluctuations of temperature. Spawning begins in May or June when temperatures reach 68°F. Pumpkinseed hybridize easily with other sunfishes, especially bluegill and green sunfish. Their growth is slow, perhaps because they live in cooler waters. They are prolific, and stunted populations are not uncommon. The largest fish rarely exceed 12 in. Like redear sunfish, pumpkinseed feed mainly on hard-shelled invertebrates, especially snails and aquatic insects. They have not become an important game fish in California.

WARMOUTH

Lepornis gulosus



DISTINGUISHING CHARACTERISTICS

Body coloration yellowish brown, with three or four brownish bars radiating from the eye over the opercle. Opercular lobe stiff and black, edged in white, never red. The presence of teeth on the tongue distinguish it from all other sunfishes in California.

DISTRIBUTION IN CALIFORNIA

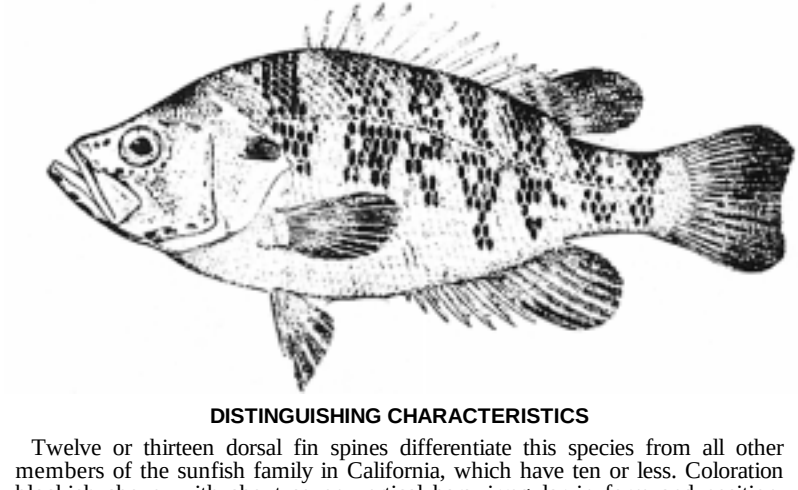
Warmouth are fairly common in parts of the Central Valley and in waters of the Delta, especially near Turlock. They were first planted in 1891 in Lake Cuyamaca, San Diego County, and in the Feather River near Gridley. Only the Feather River plant was successful. In 1963, they were discovered in the Colorado River and more recently have been found in the Delta sloughs; in Lake Amador, Amador County; Lake Hughes, San Diego County; Lake McClure, Merced County; and the San Joaquin River below Millerton Lake, Fresno County.

LIFE HISTORY NOTES

Warmouth prefer warm, muddy, medium to shallow waters of ponds and lakes rather than streams. They have been found in some cooler lakes that support trout. Spawning starts in May or June when water temperatures approach 69°F. Warmouth will hybridize with other sunfishes, such as bluegill. Growth is slow; they rarely reach more than 10 in. in length and large populations are frequently stunted. Their food consists of insects, small fishes, snails, and small crustaceans. Larger individuals will take crayfish. They are considered a good-eating sport fish.

SACRAMENTO PERCH

Archoplites interruptus



DISTINGUISHING CHARACTERISTICS

Twelve or thirteen dorsal fin spines differentiate this species from all other members of the sunfish family in California, which have ten or less. Coloration blackish above, with about seven vertical bars, irregular in form and position. This is not a true perch (family Percidae), but a sunfish.

DISTRIBUTION IN CALIFORNIA

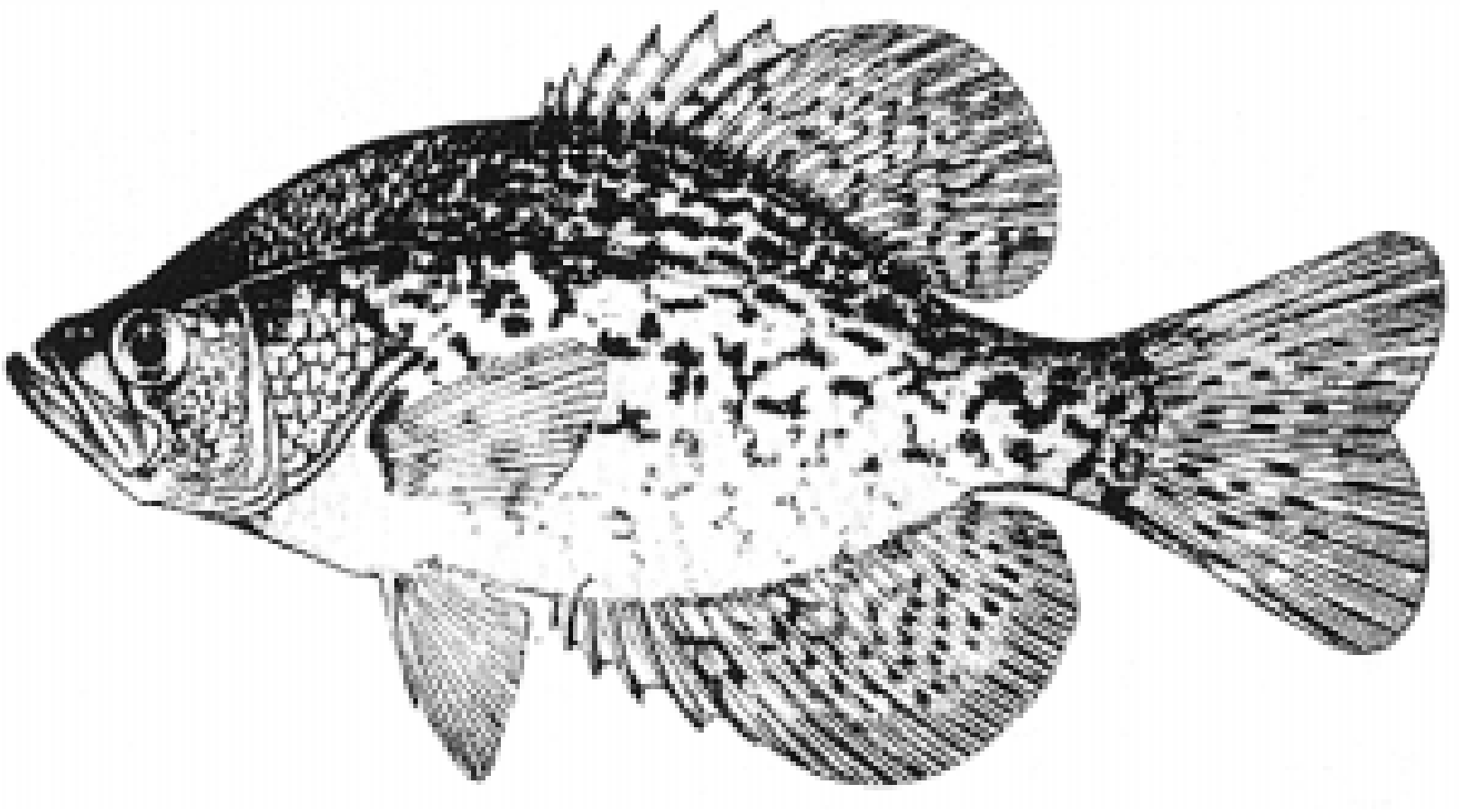
This native of California, formerly extremely widespread and numerous, has been eliminated over much of its original range, presumably as a result of the importation of exotic species. It now plays a minor part in the State's sport fisheries. It was originally abundant in all the sloughs and slow-flowing channels of the Sacramento-San Joaquin system, and the Pajaro and Salinas rivers as well; now it is seen infrequently in those areas. It has been introduced into artificial impoundments with some success and now is a contributor to the sport fisheries of Lake Almanor, Plumas County; Crowley Lake, Mono County; and San Luis Reservoir, Merced County.

LIFE HISTORY NOTES

Sacramento perch adapted to life in the waters of the Central Valley floor. They are more tolerant of muddy water, higher temperatures, higher salinities, and higher alkalinities than most other sunfishes. They grow faster and larger than other centrarchids, except for the basses, and some have exceeded 24 in. in length; however, individuals over 12 in. long are rare. They do not build nests but prefer to spawn on algae-covered rocks and on the roots of submerged plants. Spawning begins when temperatures are between 71 and 75°F. Their diet is varied. Smaller fish eat insects and small crustaceans. Adults add small fish to their diet. They are not extremely active or aggressive. They do not school. This species is more difficult to catch than introduced sunfishes, but for edibility it ranks among the best.

BLACK CRAPPIE

Pomoxis nigromaculatus



DISTINGUISHING CHARACTERISTICS

Silvery with irregular dark green or black mottling. Length of dorsal fin base about equal to distance from front of dorsal fin to eye. Seven or eight dorsal spines.

DISTRIBUTION IN CALIFORNIA

Although planting records for crappie are vague, it is likely that the first successful black crappie plant was in 1908, when fish from Meredosia, Illinois, were planted in Clear Lake, Lake County, and sloughs and oxbows of the Feather, Sacramento, San Joaquin, Kings, and Kern rivers. They were also distributed into waters in Ventura, Los Angeles, Riverside, and Orange counties. They are now the most widespread of the two crappies, occurring in most suitable waters throughout California.

LIFE HISTORY NOTES

Black crappie do well in warm sloughs, lakes, reservoirs, and large, slow rivers. They do best in clear waters, whereas white crappie are more tolerant of turbid water and mud bottoms.

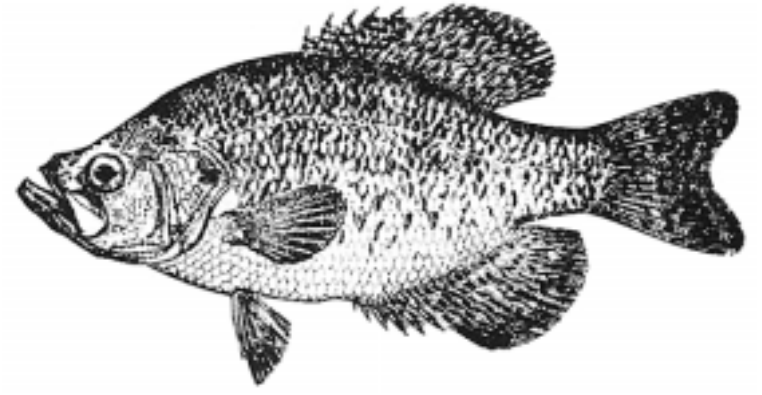
Adult crappie are fish eaters. They need an abundant forage fish supply, coupled with heavy fishing in order to produce a desirable fishery. Without heavy cropping they tend to overpopulate and stunt. This is more common with black crappie, but it also occurs with white crappie. Cover is needed during the spawning season.

Spawning is similar to that of other sunfishes. It begins in May or June when water temperatures reach 62 to 68°F. Crappie often spawn in large groups near submerged bushes or banks.

Crappie are short-lived; 4- and 5-year-olds are about the oldest found in California. When growth is slow, these fish never reach desirable size. Under favorable conditions they sometimes exceed 3 Ib, but crappie of half a pound or so are most common. Crappie tend to gather in schools in the shelter of submerged stumps and brush heaps during the nesting season and they provide good fishing when schools are located. The black crappie is one of the few members of the sunfish family that continue to feed during the winter. In most areas, black crappie provide good fishing during the winter months.

WHITE CRAPPIE

Pomoxis annularis



DISTINGUISHING CHARACTERISTICS

Silvery white, with dark green or black mottling in the form of vertical bars on sides. These bars are often indistinct in adult fish. Length of dorsal fin base less than distance from front of dorsal fin to eye. Six dorsal spines.

DISTRIBUTION IN CALIFORNIA

It is possible that all white crappie in California today are progeny of 16 fish planted in 1917 in a pond near Morena Reservoir, San Diego County. Progeny from this plant were introduced into Morena, Sweetwater, Hodges, Upper Otay, Lower Otay, Murray, Lindo, Grossmont, and Wohlford reservoirs, San Diego County. It wasn't until 1951 that white crappie were successfully introduced into waters north of the Tehachapi Mountains. They are common in Clear Lake, Lake County, and in the sloughs of the Sacramento River, Yolo County.

LIFE HISTORY NOTES

White crappie are found in the same general habitat as black crappie. See this topic under black crappie life history notes. White crappie tolerate turbid water and mud bottoms and may outnumber black crappie in these situations.

White crappie grow a little faster than black crappie but both reach the same general size.